THE

MASSACHUSETTS TEACHER,

AND

JOURNAL OF HOME AND SCHOOL EDUCATION.

JUNE, 1857.

LIBRARIES FOR ACADEMIES AND HIGH SCHOOLS.

When the ten Connecticut ministers, the founders of Yale College, met at Branford, in 1700, the very first thing they did was to form a library. Having brought to the meeting a number of valuable books, they laid them on the table, while each donor said, "I give these books for the founding a college in this colony." In this way the organic life of one of the noblest of our literary institutions began.

The early history of Yale College reveals another fact of a similar character. Of all the donations by individuals, and grants from the Colonial Legislature, during the first sixteen years of its corporate existence, including all the benefactions of Governor Yale, and all the sums subscribed for the first college edifice, more than one-fourth part of the whole sum was devoted to the college library.*

These facts show how good books were valued when Yale was founded. They disclose, also, the judgment of educators of the young in those days, as to the importance of a library as a means of instruction in any seminary of a high grade.

In our times of boasted progress in education, the formation of a library as a part of the apparatus of instruction, instead

* Baldwin's History of Yale College, page 12.

of being one of the *first* things attended to in earnest, is one of the *last* things to be more than thought of. Even the libraries of our colleges are by no means proportioned to the wants of the age for really valuable books.

If the colleges and the highest grade of seminaries are sadly destitute of what such institutions of learning so much need, what shall be said of the wants of the lower grades of institutions in this respect? Except in a few honorable instances, they are all nearly destitute of the essential means of imparting the best instruction.

This lack of interest arises, not from a want of a good degree of interest in the welfare of literary institutions of every grade. In schools supported by public taxation, we find the people are ready to pay money, for some educational purposes, with profuse liberality. The aim of our times is to rear costly school edifices, and to furnish them with every physical convenience and comfort. It is the era of "patent modes" and facilities of all sorts, which pertain to the externals and instrumentalities of education. We make no objection to all this. We care not with how many ornaments and conveniences the temple of science is arrayed and furnished, provided that it is not transformed into a Castle of Indolence. If such a thing should happen, the votaries of wisdom must seek other shrines than those now consecrated to her service and worship.

Is it not really time that the friends of sound learning were directing their attention to such improvements as pertain to the proper material or matter of instruction? Such improvements may not be so attractive to the public eye, but they will be of permanent value. All the forms and modes of teaching are very apt to change with the fashions of the times; but the essential wants of the human mind, during the period of its pupilage, are the same in every age.

While, therefore, we object not to such improvements as patent school-desks, and arm-chairs, and ventilating stoves, and hot-air furnaces, with which our spacious school-buildings are supplied, we also desire to see more of those appliances and helps to promote the culture of the mind, as well as the

comfort of the body. We would, at least, desire to see some efforts put forth to popularize, if possible, those matters which are not any the less important because their relations to the public welfare are not obvious to every eye. If the whole burden and responsibility of sustaining the higher seminaries are to be thrown upon the people, then the people must be made to understand the necessities of such institutions, or they will be sure to languish, and other means than direct taxation must be devised, in order to sustain them. It is not difficult to make all classes in the community realize the value of good school-buildings, with all the comforts which promote the physical welfare of the pupils. The public may possibly comprehend some of the incidental benefits of the best school architecture, in refining the taste and predisposing the minds of the young to receive more readily the formative influences of education. But such influences are indirect in their results on the mind, and without something more positive, the good they accomplish is of no great value. The great prominence given to the externals of education tends to make the training of the schools showy and superficial. The forms are well attended to, the substance is often wanting.

The influence of all good libraries lies chiefly in the salutary impression produced on those who have access to them; in favor of solid, rather than showy learning; and in leading to a right understanding of the true uses of all branches, the elements of which only are taught in the schools. A good library is, therefore, one of the best privileges any community can enjoy. But it is not our purpose to speak of the general advantages of large popular libraries, or even of the benefits which colleges and universities derive from them. Our object is to show their importance for schools of a lower grade, and to point out the special uses and benefits such a library may confer.

1. Our first remark is, that a school library, in order to be useful, *must have special uses, so as to meet special wants.* A town or parish library is for the benefit of all classes and ages, and for persons of every condition, taste, and calling, who have a desire for reading; but a library for a school must be

adapted to the special and limited wants of those who are united together as pupils, with minds immature and but partially disciplined, and all engaged in those pursuits and studies which are the foundation or essential conditions of that culture needful for the general purposes of life. The books of a school library, therefore, should be such as scholars and teachers need while engaged in giving or receiving instruction.

A disregard of the difference between a library designed for public and universal uses, and a library suitable for an academy or high school, has rendered nearly useless the libraries collected in several well-endowed institutions. The books are not without use to those who are not connected with schools; but, as they are never read, either by teachers or pupils, and have no sort of relation to their appropriate work, they serve only to swell the number of volumes in the catalogue, or to fill an empty shelf. It may be that large, miscellaneous collections are very likely to contain some works valuable for school purposes. So, they are useful, in the same way, to the lawyer or divine. But the wheat must be winnowed from the chaff. A library for a school is as much a specialty as the library of a lawyer or physician.

II. A second consideration, with regard to a good school library, is, *that its uses and relations to the work of instruction* are the same as that of all other kinds of school apparatus. It follows, of course, that those works which directly aid the teacher in imparting instruction, are as much needed as those which may aid the pupil in receiving instruction. Many, however, suppose that a school library is chiefly beneficial in furnishing suitable books for the pupils, and that teachers will either have made themselves acquainted with such works as they need, or else will provide them at their own expense. We doubt not that such would be the judgment of most persons on whom rests the responsibility of selecting books for a high school or an academy library. The truth is, that pupils are oftentimes far more benefited by a good book, in the hands of a teacher, than they would be, if left to peruse the volume themselves. And then, again, the very best works to aid the

teacher in the work of instruction are often such as he cannot afford to procure, or such as he has never himself had an opportunity to peruse. The books he most needs may be found only in the libraries of the learned, or in the universities. The best books, in all departments of instruction above that which is merely rudimental, are often very expensive, and are beyond the means of expenditure afforded by a meagre salary. The reason why the universities are provided with the best instructors, is, that they are possessed of the facilities which render them such.

Many persons not acquainted with colleges and the higher seminaries of learning have wrong notions of the methods by which the best influences of such institutions are brought to act on those who are in a state of pupilage; hence, they cannot see how the vast accumulations of books, in all the departments of letters, can benefit students, who have seldom the time, and, too often it may be, but little inclination to read the lore of large libraries. But such libraries do exert an indirect influence of great power on the minds of students, through the medium of learned instructors, who are themselves students for life in the schools, and, serving as torch-bearers, transmit the light of former ages to those that are to come.

What is true of the relations and proper functions of teachers in the higher seminaries will apply, in a measure, to those who give instruction in the secondary stages of education. Every teacher who desires to do the best possible in his calling, feels the need of helps in giving instruction in all the important branches of education, which the common text-books cannot furnish. The best text-books, indeed, those which best serve the interests of the scholar, make no pretensions to give more than an introduction to branches of study which are of unlimited extent, and with which the accomplished teacher is supposed to be familiar far beyond the limits assigned in the hand-book of the pupil.

Most teachers, when they have closed their normal preparation for their work, are often obliged to labor where they suffer from a real famine of those works which are of

invaluable service in the work of giving instruction. They and their pupils have no other resources than what are afforded by the text-books, which, in these days, are often but the veriest vanity. But a good school library should be so well furnished with the sources and supplies of all school literature, that the teacher may be able to speak from higher authority than that of text-books or of the school committees, who alternately prescribe and proscribe them, as often as publishers need to be accommodated.

The library of an enthusiastic teacher of the classics, if he can afford to have one of his own, will be sure to contain the choicest gleanings of the learning of all lands and times, which may tend to the elucidation of those subjects in which he gives instruction. He will be furnished with the best editions of those authors from which the selections in the text-books are taken. He will have every help needed, to elucidate the geography and chronology, the mythology and biography, the private and public life of the great nations of ancient history. To furnish these helps the greatest scholars of Europe have, for many generations, devoted their lives, each one to the illustration of some one department of learning.

A few American teachers in schools of a secondary grade are furnished with the aids of instruction to which we have above alluded; for, in the profession of teaching, as in others, there is occasionally found one who has more pecuniary means than his salary affords. There are also a few seminaries, in which may be found the important helps in the several departments of instruction given in all high schools and academies. But the number thus favored is, as yet, small.

The public are not wholly indifferent to the aid afforded in giving instruction in the natural sciences, by school apparatus, and many of our schools are well supplied, for teaching the rudiments of natural philosophy, and chemistry, and physical and civil geography; but a well-selected scientific library, consisting of the important reviews and encyclopædias, the transactions of learned societies, and the vast number of separate treatises, in almost every science, would be, for the

teacher, the most valuable of all school apparatus. And, even for the pupil, a good diagram, it is often said, is a far better illustration than any piece of material mechanism, however curiously constructed.

III. *The general literature of education* would be a valuable contribution to every school library. Teachers, school committees, and superintendents would derive special benefit from the opportunity to peruse the journals and reviews devoted to an interest so vital to the public welfare as that of education. The teacher should aim to do more than *serve* the public, in his vocation as a teacher of the young. He should *control* the public opinion of his locality or sphere of influence, by his own intelligent judgment in respect to all matters pertaining to his own calling. Thus he may become the instructor, not only of the young in the rudiments of learning, but he may become the teacher of the community, in the right philosophy and methods of education. But an ignorant teacher can do no such service. And no teacher can be well informed, unless he keeps pace with the literature of the day, in relation to all that belongs to his profession. He ought to be furnished with some facilities for this end, in the choice selections of a good school library. In such a repository, with a view to such uses, should be gathered all documents and statistics, all the reports made to legislative bodies, by committees and those officers of public instruction, whose proper function it is to diffuse correct principles of education among the people. And yet, we believe but few efforts have been made, in the manner now proposed, to elevate the character of the teacher, by affording him the facilities to become familiar with the broadest relations of education, as a controlling agent in all the affairs of civilized society. If the attention of statesmen and the best minds of the world may study with the closest scrutiny the results of the teacher's daily labors, why should not he himself be interested? Such studies and contemplations would be an incentive to effort and a solace in his toils.

IV. A good school library should be formed *to meet the direct wants of the pupil*, while he is connected with the school.

From this point of view we see that a school library must be specific in its uses. It is not desirable that the pupil in school shall have access to books which have no relation to the studies in which he is engaged, and for the sake of which he is connected with the school as a pupil. To use books indiscriminately, is no proof of wisdom at any period of life; but for a boy at school, whether he be a genius or a plodder, to form the habit of miscellaneous reading, and by that means sacrifice the regular studies of the school, or render them less attractive, is extreme folly. It were better for such pupil to be deprived of all access to a library which, by such a use, becomes the occasion of abusing his best opportunities for improvement.

The most valuable books for pupils to read, are such as coincide in aim and design with the daily work of the school-room. Of course it is taken for granted that all the processes of culture, as it respects schemes and courses of study, have been arranged by competent instructors. If so, it is not best that counter and neutralizing processes of education should be allowed. But the practice of unrestrained promiscuous reading has this tendency in a high degree. We know of one far-famed teacher who has proscribed general reading as a school offence, whenever it may interfere with the regular school exercises. We well recollect the protest of President Day against this practice, which he regarded as the bane of good scholarship in college. He used to advise the Freshmen to avoid all reading, not related to the studies in hand, and quoted the saying of a wise man, who said that "if he had read as many books as his contemporaries, he should have been as ignorant as they were."

But there are books suited to the wants of the mind in every stage of its progress, and in no one respect does the pupil more need the counsel of a wise tutor, than to be informed as to what are the best books for his special necessities. In such a choice selection will be found a full development of those subjects, in all their relations and uses, which the teacher in a class recitation can only treat of in a summary manner. In this way enthusiasm in a particular department of study will be excited by healthy stimulants. It is quite certain that

the unhappy impression will not be left on the mind, that the subjects of school study are exhausted by the routine of school exercises, and that an education is complete when it has hardly begun.

As a course of elementary training stands related to the real wants of mature life, fitting the pupil for its duties by modes and processes, the advantage of which, for the time being, is an object of faith and not of sight, so does the use of a *choice* selection of books serve the pupil as a preparation for the right use of *large* libraries. If the pupil in the course of preparation for college has had the advantage of a good academy library, he will be ready to appreciate and to make good use of the library of the university. But if he has had only the preparation of the text-book and lexicon, he may pursue just the same method in college, and graduate even, without any just knowledge of the literature of his own, or of any other ancient or modern language. For all who are seeking only a good English education, it is especially needful that a selection of the best English and American authors should be accessible. They should be read under the direction of the teacher, with a view to the culture of the taste, and the formation of a clear judgment, as to the qualities of a good book. Such a judgment may be formed in early life, and is one of the best results of any course of education, whether liberal or partial.

V. An important consideration in the proper selection of a school library, is, that *all books should be excluded whose sole aim and use is amusement.* We take this ground, not because we are opposed to proper amusements for the young and persons of all ages. We believe that no person lives for any good purpose, who does not, when in health, and for the sake of health, need some sort of physical and mental relaxation or amusement. We believe, furthermore, that of all sorts of amusement for the mind, none is more rational and salutary than an entertaining book. But instruction in the art of amusement is not needed in any school of any grade. Nature has made better provision than art can furnish in implanting the bounding impulses and constitutional proclivities for play in the youngest child. If books are needed for mere amuse-

ment, at suitable seasons in term time, or at any other time of school life, the world is already full to repletion of just such books, and they need not, therefore, be provided at the public expense.

Another reason why books of amusement, as such, should be excluded from the choice selections of a school library, is, that no impression may be formed on the minds of the pupils, that the ends of really useful learning are mere pleasure. The right opposite impression should be the result of all school exercises, whether they be lectures, recitations, or the reading of good books. It is an evil of a very dangerous tendency, in our honest opinion, when books or studies come to be valued only by their mere power to please. Work is the proper occupation of all pupils who have passed the primary stage of education, and that pleasure only is to be lawfully sought in earnest profitable labor of any kind, whether physical or mental, by pupils and adults, which comes as the reward of duty well performed. And no series of duties were ever well done and done constantly and in their season, which were not sometimes irksome and even painful. Books of amusement belong to the play of a school, and not to the work; and as there is no need of professorships of whittling or wicket in our schools, so we need no school libraries consisting of novelettes, fancy poetry, or any literature whatever, whose sole recommendation it is that it is designed especially for the use of children. We do not deny that children's literature has its uses, perhaps in the primary or infant school, but not in institutions of any higher grade. It is of the nature of play-things, and will be "put away" with other "childish things," when the "thoughts" and "words" of the child are exchanged for those of that "manhood" which it is the special object of the higher grades of schools to develop.

VI. In this connection we may be allowed to say a word respecting "district school libraries." They have been the theme of extravagant laudation, and they have cost the State a large sum of money, which we honestly think could have been better appropriated to aid the cause of popular education. No objection can be made against the books which, published

as a series for this purpose, were extensively distributed. They were good books, and would be valuable in a library for an academy or high school, where the pupils were old enough to make a proper use of them.

The great work of every district school should be primary instruction only; and in teaching the art of reading and spelling, with the rudiments of numbers, grammar, and geography or history, neither the teacher nor pupil needs more than a series of good text-books. When the district system is abolished, as we hope it will be before long, then it will be found that the higher grades of schools only need a library. In the present condition of district schools, only a few of the pupils can be benefited by books which are really valuable. In some instances the district library may have become a nucleus to something more extensive and better provided for, but in most instances it is believed that the district libraries have proved a failure. Consisting of but a few volumes at first, they have been worn out by constant circulation or abusive treatment, while but little pains has been taken to replace lost volumes or to increase the number.

VII. But we have been led far from our original purpose in preparing this article, which was rather *to show what had been done* in procuring libraries for academies and high schools, than to speak of their use. We wish we had more to say than we can, on this our remaining topic; for we are compelled to believe that, with a few honorable exceptions, but a small number of the high schools and academies of the State are as well provided for as they should be with what we deem essential means of instruction.

Some of the ancient academies of the State have long possessed libraries. Phillips Academy, at Andover, connected as it is with the seminary, is amply furnished with all the facilities which teachers in a classical school can desire. We are not aware that large collections of books are accessible to the students of that institution. Lawrence Academy, at Groton, has a library of nearly 4000 volumes, mostly the gifts of its benefactor, the late Amos Lawrence. This is an excellent English library, and contains many valuable works for school

purposes, but it is too miscellaneous, and is deficient in works to illustrate the ancient classics. Williston Seminary was furnished at the time when it was founded with a small library of choice English literature. At Monson Academy, there is a small library of choice English literature, with some excellent editions of the classics, and some valuable works on natural science. Monson Academy has a small library fund, the annual income of which has, for several years, been most carefully expended, not for the purpose of making a show in the number of volumes, but to procure the very best books.

Among the high schools of the State, supported by public taxation, the Latin School of Boston is distinguished for its excellent library. It is chiefly a classical library, and is a perfect gem for one of its kind. The number of volumes is not large, but their quality is precious. Here are found many such works as the "Musée Française," or the splendid engravings of the celebrated Louvre collection of paintings and ancient statuary.

We have not had the good fortune to examine the library of the English High School, but we are informed that under the auspices of its excellent Principal, Mr. Sherwin, it has been furnished so as to meet, in an ample manner, the special wants of his department.

Within a few years past, very commendable efforts have been made to establish libraries for the benefit of the high schools in the vicinity of Boston, particularly at Charlestown and Cambridge.

The high school at Cambridge deserves notice not only for its large number of volumes, but especially for its excellent catalogue. To this catalogue we refer the teachers of all high schools as a model of its kind. By its aid they will obtain a clear idea of what they need, both as to the quality and the proper arrangement of a good library. This library contained in 1853, the date of the catalogue, 1,600 volumes, valued at $2,400. A list of the philosophical apparatus is given, the cost of which was nearly $2,000.

The history of the Cambridge school library, as given in the preface of its catalogue, shows that the agency and self-sacrifices of the late Principal, Mr. Elbridge Smith, now of the

Norwich Free Academy, were chiefly instrumental in its formation. He was assisted, indeed, by many of the citizens of Cambridge in his noble enterprise, and in this instance, advantage was taken of the aid of the State in conformity with the provisions of the law respecting district school libraries. But no money was raised for the object by taxation.

If school libraries are generally established in schools of a high grade, it must be done by private liberality, at the urgent suggestion and self-denying efforts of teachers. And it is well that the teacher should bear this responsibility, for to no other person can this trust be so well committed. An opportunity is thus given him to do that which will make his influence on the future character of the school a constant agent, though his connection may be temporary. If, by his direct efforts and sacrifices, he enlarges the means of instruction and renders permanent a liberal policy of administration, then, in an important sense, he will be an instructor in such a seminary for all the future. The presence of good books, selected by his hands, will be memorials of his taste and judgment. The successive classes of pupils will feel his formative power, not less active, though silently exercised, in the deep and ineffaceable impressions made by just the right means at just the fittest time.

One of the richest benefactions Yale College ever received, was made in 1730, by Bishop Berkeley, who sent to the college, in the day of its small means, the magnificent present of 1000 volumes, valued at £400 sterling. It is said that in this collection, made by the Bishop himself, there was not a volume which was not in his time deemed a choice work. Berkeley was the almoner of other gifts to Yale, and also to Harvard, but none could have produced more happy or lasting results.

In the scheme for the Norwich Free Academy there is one feature of the enterprise, which, we doubt not, will be regarded by all teachers with high satisfaction. The donors of the new institution, in laying the foundations of the best endowed classical school of the second grade in Connecticut, were not unmindful of the great example of those who, more than a century and a half ago, founded Yale College, one of the best

institutions of the highest grade in the land. Not only have they done what the poor ministers at Branford did, in giving good books at the outset, but out of their abundant liberality they have donated $5000, as a library fund, the avails of which shall be annually appropriated. A room for the library is also provided in the Academy Building, which is one of the finest edifices yet erected in New England for educational purposes.

We hope that the library of the Norwich Free Academy, which is to accumulate with the growth of the new seminary, will be a model for all other schools of the same grade and object. We hope that in the selection of books, their qualities and uses will always be regarded. We are anxious that the ambition will be forever discarded of making a vain show of a large number of volumes without regard to their contents. Such an ambition we have known to influence college under-graduates, in the strifes of rival societies, but it can never affect those qualified to estimate the value of a good collection of books. It is with books in a library, as with men in a commonwealth; their aggregate value is not according to their number, but their moral force. What is the chaff to the wheat? C. H.

THE ALPHABET.

If one has a correct appreciation of the powers of the letters of the alphabet of his own language, and a ready command over his powers of speech, he may so perfect his utterance, and his style of oral delivery, as to suit the tastes and answer the current demands of the community. Present usage, indeed, is the test of excellence in relation to all that pertains to language, and few care to inquire into the usages of the past, or to ask of antiquity how, when, or where the elements of written language had their origin. Still the question is fraught with the deepest interest to those who would wreathe the dry and lifeless elements of speech with the flowers of other days, and even in their present shapeless forms, recognize their living origin. Though in the investigation much, perhaps the

greater part of our knowledge, will be found based on conjectures more or less probable, yet it is nevertheless interesting as a history of the human mind, sensible of its need of a higher power of expression than it possessed, to pour its nobler, deeper thought over the souls of coming time, displaying the prevalence of a law that restores to its original non-existence whatever has failed to meet the requirements of the expanding intellect. Truth, the living germ, remains, but the stalk and the leaf that sustained and nourished it, have performed their part, and gone to decay in the dim realms of the past, scarcely to be recognized, even beneath the rays of the light of the present turned upon them.

Many a conservative spirit has groaned over the irreverence of its age, for the venerable forms and methods of communication learned by the study of years; but relentless Oblivion has made them his own. Even when man desires to know the pedigree of his present knowledge, he can trace the line but to the realms of fabulous mythology, the receptacle of all things unhallowed by inspiration.

We continually reach this "ultima Thule" of inquiry in our endeavors to discover the time and mode of the origin of the written alphabet. We find no difficulty in *assigning* to it a birth-place, but the number of nations claiming the honor is even greater than the number of cities which claimed to have rocked the cradle of Homer. All inquiries, urged with a view to discover the truth in this relation, have but left us in Egyptian darkness, reading at last on the base of the statue of the Egyptian Minerva, "And my veil hath no mortal ever removed."

The origin of the alphabet has been in turn ascribed to the Greeks, the Egyptians, the Syrians, the Chaldeans, and the Hebrews. Its origin has been attributed to Adam, Enoch, Abraham, Moses, and to Saturn, or Time itself. It is pretty well established that the Greeks owe their knowledge of the alphabet to Cadmus, a Phœnician. But it is not known whether Cadmus was a man or a myth; the name, signifying "a man from the East," casts a shade of suspicion over the genuineness of the man as an individual of that name. Never-

theless, all that we know of the man, and indeed all that we wish to know, is the fact of his having furnished Greece with the alphabet. Diodorus declares that letters were invented by the Syrians, from them were transmitted to the Phœnicians, from them to Greece. Pliny declares that Cadmus, the Phœnician, brought eighteen letters into Greece. But Plutarch limits the number to sixteen. Another ancient writer says that "In the reign of King David, one hundred and thirty-five years after the destruction of Troy, Cadmus, at the head of a colony of Phœnicians, fleeing from the victorious arms of that king, carried letters into Greece." With this meagre fragment of history we may as well rest satisfied, as to toil in vain for a more satisfactory origin to the alphabet. But we have hereby done little to settle the question of the mode, time, and place of its *first* invention; for the present may not improbably be a compilation from several original alphabets, as we know that a native of the Cherokee nation in our age, invented an alphabet, which he is said to have done without a knowledge of the existence of anything involving the same principle. This would seem to indicate that the original invention might not have been, probably was not, a vast stride in advance of the time in which it was made. It was rather an invention urged by the wants of the age. Of course vocal language was the mode of expression, whereby the wants, passions, and emotions, were first uttered; and, by the aid of gesticulation, and of all the elements of poetic expression, such as comparison, metaphor, and the other rhetorical figures, which in the human mind preceded the discovery of the alphabet, it might have attained, and doubtless did attain, a high degree of perfection. As vocal expression is the language of all times and seasons, equally useful by day and by night, by man in motion as well as in repose, communicating thought by a whisper to the ear, and by louder tones through greater distances, it must have answered for a long time the demands of early society. At length the desire of transmitting thought to those beyond the reach of sound, and of leaving a permanent record of it to future generations, created a necessity, which is the mother of invention.

What expedient would be likely first to employ their attention? Even had history furnished no record of the specific mode adopted, we should scarcely fail to suggest the true method.

As in the study of a plant to obtain all the conditions of its existence, we may examine in the same individual, the different degrees of the advancement of the flower, so in the inquiry into man's intellectual condition, we have but to study the individual at the same time in his different degrees of progress, in the savage, the barbarous, and the civilized state.

The North American savage marks the progress of a trail by an arrow carved on a tree, a battle by a weapon in a warrior's hand arrayed against another. The same mode of representation prevailed among the Aztecs, who moreover advanced more nearly to the Invention of an alphabet in the use of symbolic emblems, as a "tongue" for talking, a "footprint" for travelling, a man sitting on the ground, for an earthquake; but still nearer to the great discovery is the third method of writing, being decidedly of a phonetic character. According to Prescott, in this mode of writing, "signs are made to represent sounds, either entire words, or parts of them." Notwithstanding this, the Aztecs preferred the method of picture-writing to record their laws and all matters of an important nature. This surprising indifference to the manifest advantages of the phonetic system is doubtless in the main attributable to the conservative policy of their Emperors, who regarded all popular improvement as antagonistic to the rule of law and order.

Here we have in the same country and at the same time, all the varieties of writing which may be supposed to have preceded the discovery of the Cadmean alphabet. In the inquiries which men have urged in relation to this matter, the evidence adduced and the course of argument pursued, have favored the existence of a primitive alphabet, from which most if not all the other ancient alphabets arose, and indicate that the original forms were the representations of visible objects. It is not a valid objection to this theory that the forms of most of those letters present but a remote resemblance to

their supposed original. The original attempt at representation may have been badly executed, or the copyist may have failed in imitation, and, since the art of printing was then unknown, the alphabet was at the mercy of every writer who chose to improve its original form.

Another cause for the variation in the forms of the same letters in the same or different alphabets, is found in the nature of the material of which the pen, the ink, or the surface for the writing was made. Some letters were carved on stone, wood, or metal, others were written on the papyrus, on cloth, or vellum; and instruments with which the writing was executed, were made of metal, of the rush, or of the quill. From this cause the thickness of the lines and the sharpness of the angles would vary, and many forms resulting from these causes, either with or without the design of the writer, would become permanent.

The greater number of changes effected has been doubtless the result of intention. The forms of animals, of utensils, and of other visible objects, might very well be used in the infancy of the art, but at length a prominent feature of the object would be selected, as we see in the figures representing the signs of the Zodiac, and in the symbols of heraldry, in which but a part of the visible object is represented.

But another theory has been published to account for the forms of letters, which, as it furnishes some curious resemblances, may here be described. This theory ascribes the forms of the letters to the position of the organs of speech at the moment of uttering their sounds. By this theory, the letter A is supposed to represent the upper and the lower jaw, with the teeth or tongue between them, placed upright from its original recumbent position. The letter B represents the lips closed; M the same turned upward; P, or the Greek Pi, the same turned downward. The letter C pronounced hard, the same with the Greek Gamma or G, and the more modern K, was at first an angle representing the throat with opened mouth, afterwards rounded in two of the letters for their distinction from K. The letter E is the open mouth with the tongue in the centre. The letter I, pro-

nounced short as in pin, is made by and represents the very smallest opening of the lips, at first horizontal, afterwards raised upright. The letter O is the open mouth, retaining its nearly circular form in thirteen ancient alphabets examined by the writer. The letter S in nearly all the alphabets above mentioned, presents the serpentine form, and thus favors the supposition that, in this case at least, the early principle of formation first described has been retained. Perhaps sufficient has been said to illustrate the principle assumed by this theory, and few will regard it as founded on good historical evidence, how striking soever may be some of the analogies presented.

Both theories presented above are based on the supposition well established, that capitals are the more ancient form of the alphabet. They were, and in some languages at present are, written from right to left. In the ancient Greek they were written Boustrophedon or ox-turning-wise, that is, in lines alternating from right to left, and from left to right, as the ox in ploughing turns at the end of each furrow. This method of writing was in vogue till the time of Solon, and it is, in some respects, preferable to the plan now pursued, which, in lines closely printed on a broad sheet, subjects the reader to loss of time and to much care for the selection of the beginning of the next line. The great objection to such an arrangement of lines, consists in the difficulty of forming the written letters in both directions. In printed words this would be less felt, but the labor of learning to read would be increased.

In the adoption of the Roman alphabet, the nations of Europe seem to have been impelled by a sort of necessity. The language of the conqueror is that of the court, of fashion, and of science. It must become, therefore, the prevailing language, modified, however, by the peculiarities of the language of the vanquished. It is in this manner that the clumsy attempt was made to spell words of the Saxon language with Roman letters, giving rise to unwieldy combinations of consonants, and to the expression of various vowel sounds by one character. Thus the letters c, k, and q perform but the labor of one

of them, if we but allow s to stand as a substitute for c before e, i, and y. It is manifestly superfluous, since all words in which it occurs, could as well be spelled with u. The part of y could be performed by i. It is not a sufficient reason for their retention, that they sometimes distinguish words of similar pronunciation, for notwithstanding their services in this respect, the art of punning is not lost to the ear, and a vast number of such words remain, in which their aid is not afforded. The attempt to form a sliding scale for the sound of the letter a, is a signal failure in our language. Indeed, scarcely two orthoepists could be found who would pronounce the word CAST so that the difference should not be perceptible to a delicate ear. Instead of five vowels and two half vowels, the number may be infinite, as any one may discover, who will sound the letter e long, and, drawing back the tongue, and projecting the lips, continue the sound till the tongue reaches the throat. The same character of sound may be given by a whistle modified by the retreating tongue. Why not, then, give to each letter but one sound, and require all the others to yield to it? This is done in the Spanish language, and no perplexity results from it; on the contrary, the Spaniard, on this very account, proclaims the superiority of his language to the English. The alphabet should be revised. The orthography of our language should be revised. Dr. Webster attempted the task, but was alarmed at the opposition arrayed against him; an army of authors defending the works they had written for immortality, and many hosts of printers, type-founders, and learned men, who could not gracefully submit to learn the alphabet anew, and thumb the spelling-book at sixty. But why halt at improvement in our language, when we are subduing the elements to our sway, taming the lightning into a post-boy, and harnessing to our cars the antagonisms in nature, fire, and water, in order to relieve ourselves from labor, and lengthen out our lives? Why is it that three hundred years before the time of Queen Elizabeth, our language was almost *transformed* to reach its present shape, and for the three hundred years since that date, it has undergone so little change?

We know that the people of England jealously guard against innovation, and frown on every radical improvement as an enemy to the Queen, Lords, Commons, and Consuls; but Americans should learn better to know their own interests than to adopt a mode of reasoning and acting, or rather of *being*, inapplicable to their condition. Shall we lead in reforming the English language, and leave our venerable mother to pursue her conservative course? I believe the time is at hand, and that, having conquered the material obstacles of a new continent, this people have leisure now to attempt *something* whereby to distinguish themselves as men of thought as well as of action. J. B

Written for the Massachusetts Teacher.

GOD'S GARDENER.

In a garden quaint and olden
Once I wandered in the spring;
From the dark mould, purple, golden,
Burst the Crocus' shining wing.

As I wandered, musing, thinking,
Of this earth with being rife,
And its births' mysterious linking
With the higher spirit life:—

On a sudden stood before me
A fair child with yellow curls,—
And he looked so frankly, boldly,
As he shook those golden whirls—

That he seemed a fresh young angel,
Just created like those flowers,—
God's immortal, new evangel,
Growing in these garden bowers.

Soon the gardener, with his shovel,
Came and turned the dark, moist earth,
And with earnest care and trouble
Nursed these flowers of recent birth.

Then, methought, Where is the gardener
For this tender, fair young boy?
Who will take this angel-wanderer,
Show him all life's tasks and joy?

Then, unto my heart was whispered
Words with deepest meaning fraught: —
And my soul with hushed awe listened
To the silent, breathing thought: —

Thou the gardener, — *thine* the duty
To train this flower so fair;
God has clothed his form with beauty,
Thou must now its culture share: —

Angels, on their mystic mission,
Spirit-food to him have brought,
And within his eyes' soft vision,
Shines the wonder — human thought!

Work thou with the Lord and angels;
Labor in this garden brown,
Painting on those soft, white petals,
Crimson cross and golden crown.

In a garden, young and golden,
God first taught the human race; —
In a garden quaint and olden,
Christ spake words of truth and grace.

This the lesson in the garden,
Which the angels whispered me,
When they made me guide and warden, —
Of this casket gave the key.

So, within God's garden blooming,
Flowers and plants I tend and love,
Looking ever through the gloaming,
To the Gardener's help above.

He, the perfect one and holy,
Worked within this garden green;
Taught the child, the poor, the lowly; —
On his powerful arm I lean.

Magnify your office, teacher!
Higher than the kings of earth;—
Are you not the prophet, preacher,
To the future giving birth?

Young immortals cluster round you,
Look with love into your eyes,—
Great the task the Lord has set you,—
Training angels for the skies.

May the children round you growing,
In this garden, angel trod,
Be immortal flowerets blowing,
On the bosom of your God. E. E. P.

GROTON, April 27, 1857.

LAZINESS.

THERE are many obstacles to the successful exercise of the faculties God has given us. Accidental circumstance, as station, sex, physical constitution, often fetters the arms of those who burn to strike heavy blows in the cause of right. To the poor man, comes first the imperative duty of getting a living; and if he does that, he does well, and will, probably, do nothing more. Sam Johnson could write a philosophical essay to pay for his dinner; but, as a general thing, the man who is busy from morning till night providing necessaries for his household, has little opportunity or inclination for brilliant thoughts or magnificent actions. The unfortunate creature who happens to belong to the female sex must school herself as soon as possible to quietude and contentment, for the powers that be have decided that she is fit for nothing but to take care of the children and boil the potatoes. The man of feeble health, who must walk where others run, must creep where others walk, has need of all his strength to preserve that cheerfulness and equanimity which a vigorous frame would render spontaneous.

But, nevertheless, it cannot be doubted that greater than poverty, greater than sex, greatest of all the obstacles to the

development and right application of the talent that is in us, is our own indolence. Be sure people suffering from vexatious disadvantages are ready to exclaim, "If I were this or that, if I were rich, if I were in health, I would never neglect those opportunities which so many disregard." But this would be a very contented world indeed, if no one mourned over privileges of which he was deprived, until he had faithfully employed those of which he was possessed. Many of these most noisy complainers might be found to be submissive slaves of that mysterious power which is forever insinuating into our composition a subtle influence to make our eyelids heavy, our intellects sluggish, and to convince us, in spite of Professor Olmsted's declaration to the contrary, that rest is the natural state of bodies.

This powerful influence, everywhere so pernicious, is particularly fatal when it gets a lodgment in the brain and bones of a student. It is this form of its manifestation, so harassing to teachers, so distressing to parents, and so injurious to children, that I wish to trace out. As a matter of curious speculation, let us look over the shoulder of one of the ten thousand young men who are, at this moment, attempting to discipline their heaven-born faculties by unravelling some of the intricate puzzles strung together by Virgil or Cicero. There is upon his face a glow of animation as he catches the thought of the author, and observes the nice adjustment and adaptation of the parts of the frame-work in which it is embodied. Now he is not at all skeptical as to the utility of Latin. But soon he comes across an unusually knotty sentence, and his ardor begins to abate. The book in his lap grows exceedingly heavy. He thinks it an awful bore to be forever turning over the leaves of an old lexicon. For his part, he means to be a practical man, and, in that case, he does not need Latin. It will be infinitely better for him to give his attention to writing and speaking, so away goes the book, and the boy does not blush to present himself at the recitation with an indifference and stupidity which must give a headache to his teachers, and a heartache to his friends. But let us follow him to his composition, and see how practical that will be. We find him seated

at the table engaged in that ambitious exercise. To make sure that he has a subject, he has written it, we observe, with great distinctness at the top of the page, and underneath are a few stray thoughts which he is not regarding with any great complaisance. He is conscious that if he can only attend faithfully to the business in hand, he can dig out a very respectable composition. But will he? It is surprising how attractive everything about him suddenly becomes. The books on the table look inviting. Objects out of doors solicit his attention. His mind flies from one thing to another with amazing alacrity. It has great fertility of thought, but unluckily the thoughts do not seem to have any relation to the subject. This struggle which he attempts to carry on against the subtle and powerful spirit of laziness which oppresses him is neither long nor doubtful. After a few feeble attempts to fasten his mind on that repulsive word or sentence which stares him in the face with such an empty look, he allows them to flutter away whithersoever they list, until some welcome interruption affords him an excuse to lay aside his work for the present. Ere he is aware of it, the setting sun announces that another Saturday night is come, and he has not yet become a distinguished writer.

Still once more let us follow him to his debating society, where, if anywhere, he must now show his brilliant parts. He has assigned to him the duty of engaging in the discussion of a question. He acknowledges the obligation of the duty, and firmly resolves to prepare for it. Yet a week is such a long time there is no occasion to be in haste, and he will examine the subject at his leisure. But as the days glide swiftly by, headaches, hard lessons, and unexpected engagements occupy so much of his time, that he gives up the design of making himself thoroughly acquainted with the question, and deludes himself with that most forlorn of all forlorn hopes, that his adversary will present some questionable thoughts which he may pick to pieces, and out of the fragments construct for himself a speech.

This indolent habit of study prevails largely in all our schools. The pupils do not study hard enough when they are

at work. One who is running a race against a competitor strains every nerve and fibre to attain the greatest possible velocity, but they who have hundreds to contend against are content to move along leisurely at their ease, if thereby they do not fall behind the hindmost.

The study which strengthens and educates the mind, is work; it is not play. A certain young law student who said he was reading Kent's Commentaries for amusement, very soon afterwards accepted the office of hostler in a livery stable. Those students, who make the resolution of quadratic equations and the extraction of Greek roots only the recreation of their leisure hours, will undoubtedly arrive at a similar realization of their aspiring hopes.

It is the duty of the teacher to eradicate from the minds of his pupils, as far as he can, erroneous notions respecting genius, and faithfully to represent to them how much patient industry may add to the efficiency of moderate natural endowments. Great scholars are rarely great geniuses. In nine classes out of ten, at Yale or Harvard, the best scholar in his class owes his position not so much to his superiority of talent as to the simple fact that he has been faithful to the capacities he possesses. Indolence, that great enemy of his progress, has been overcome. Perhaps many of his mates could get a lesson quicker than he, could debate more fluently, could compose with more facility, but the secret of it is, he has all the time been busy trying to do better, while they were lying by satisfied with what was already done. The early morning finds him awake, and at work. He cannot afford to lose those morning hours, when the mind is most vigorous and clear, for, being no genius, he has to depend on the development which comes from labor.

The teacher, who is the proper physician for the various diseases to which his school is subject, will find this wide spread and dangerous one somewhat relieved by the establishment, among his pupils, of a correct estimate of the value of leisure moments. A large part of our lives is made up of odd spells; half hours before breakfast, half hours before dinner, or a little while before it is dark enough to light a candle.

Now, if all these are wasted, what a tremendous loss we suffer! Who can estimate how much intellectual strength and agility might be obtained, if those crevices of time were filled up with earnest reflection on what is and what ought to be, rather than those vicious reveries which are excited by a morbid imagination or an idle vanity.

Should we see a man on horseback surrender himself to the will of his beast, submissive to its aimless wanderings, we should call him mad. How much more, then, should we question the sanity of him who is willing to relinquish the control of his intellect, and allow it to spend itself in aimless, profitless activity. Among the young, there is much danger of miscalculating their own powers. It is the business of a teacher to assist them to elevate a proper standard of attainment. Let it be neither too high nor too low. If is too high, they will do nothing; if it is too low, they will do next to nothing. They should carefully determine beforehand how much they can do; how much they ought to do; how much they *will* do; then *do it*, any little hindrances, annoyances, or interruptions to the contrary notwithstanding. Thus may they never have to blush and feel ashamed at the sound of that solemn declaration, "Unto whom much is given, of them will much be required." A. B. M.

NATURAL PHILOSOPHY.

Some of the instruction given in our schools in the department of natural philosophy seems to us to be of poor quality. Sometimes it is anything but philosophy. The pupils commit to memory the words of an ill-prepared book, and because they can repeat these, are supposed to understand the subject. Now it is our opinion that whatever printed matter is committed to memory ought to have a high character *as literature*. It is often useful to commit to memory the words of a book, but only when the composition is correct, elegant, and vigorous English, if English be the language, and when the

thought is clearly and tersely expressed. No child, or any other person should ever load his memory with the loose, ambiguous and inelegant expressions which occur in many of the text-books used in our schools. And some of the books on natural philosophy do not abound in the choicest literature, and on that account should not be committed to memory. English literature is not so barren of noble productions as to make it necessary to form the habits of young persons upon the models of style furnished in these text-books, or to feed growing minds upon the husks in which the truths of science are usually encased in them. A child who can repeat his mother tongue as it appears on the pages of Shakspeare and Milton, never should be required to learn the language of a common text-book on natural philosophy. This we are saying of the language only, not of the matter. It may be very proper to require the fact to be remembered.

Is it objected that the author's language better expresses the facts and relations to be remembered, than any statements of the pupils would be likely to do, and that therefore it would be advisable to use the former? We answer by asking whether it is not almost essential to a clear understanding of a principle by a pupil, that he should himself elaborate the expression of it? At least, is it not universally admitted that the expression of a truth, in one's own words, adds greatly to the distinctness of its perception in the mind? "I know, but I cannot tell," is an answer to questions that would pass in few places now, we think. Most teachers, probably, agree in opinion with the venerable President B., who, in his lectures on mental philosophy, used to say to us: "Young gentlemen, it is all a delusion to suppose that you know a thing, but cannot state it."

Indeed, we should be glad to think that we have been running a tilt against a man of straw, throughout these two paragraphs, for it is to be hoped that few teachers are in the habit of allowing their pupils to do what we have been condemning. And yet it has been done, or we should not have alluded to it. We remember hearing a class, in a high school, recite very promptly, a lesson on the double convex

lens and its uses. After the recitation, a question in regard to the effect produced by such a lens upon the direction of a number of rays of light passing through it, — the main point involved in the whole recitation, — came up again, and most of the class could only say that such rays were either made to converge or diverge, and they had forgotten which. Here the fault was that words had been learned, and nearly all of them accurately remembered, but a degree of resemblance between the words "converge" and "diverge" made it difficult to distinguish one from the other.

Lately, by the use of apparatus in teaching this subject, and by the preparation of books better adapted to assist the teacher in performing experiments, a reform has undoubtedly been begun. What a scholar sees as the result of an experiment is not dependent upon words for its appreciation. The difficulties of the subject are not enhanced by the inaccuracies and ambiguities of speech. The knowledge reaches the mind directly; no part of it is absorbed by an imperfect medium. And, on this account, the use of apparatus, in natural philosophy, tends to exactness in the knowledge of the facts of the science.

A writer in the "Teacher" for June, 1856, represents the reform of which we have just spoken. He insists upon ability to use philosophical apparatus, as a *sine qua non* in the teacher of a high school, and goes on to detail the failures and mortifications to which a good scholar may subject himself, in such a school, by the want of manual skill in conducting experiments. We know not who the author of the article in question is, but we wish to say that, in the main, we cordially agree with him. A teacher that should follow out the suggestions made at the close of that article, could not fail of interesting his pupils, and of making them acquainted with many useful facts and principles. But are we ready to receive, without qualification or addition, the statement that "natural philosophy is an *experimental* science?" Is there not something in it much more than experiment? We would not say that the application of mathematics to physical laws is experimenting; and yet, this is a part of natural philosophy.

Indeed, is it not true, in a sense, that the experimenting only introduces us to the philosophy, — that we begin to philosophize when we have done experimenting? We do not mean to disparage experiments, for we consider that they furnish the premises for the syllogisms of natural philosophy. We only wish to call attention to the fact, that, in teaching this subject, we must do something more than furnish premises, — we must also reason.

And this brings us to what we most wish to say. Experiment is the foundation of knowledge in physics; but there is a superstructure of logic, if we may so say, that is far more magnificent, and more useful as a mental discipline. Which is most important, or, on the whole, most useful, we do not attempt to say. We leave that question to the members of country lyceums, who are accustomed to discuss such momentous topics as the following: "Which is most to be admired, friendship or wisdom?" &c.

But let us illustrate the point under consideration by an example. Suppose, in mechanics, that the pupil, after learning, from experiment or otherwise, the fact that the momenta of moving bodies depend upon the product of their masses into their velocities, and that two bodies, having equal momenta, and moving in precisely opposite directions, would, on meeting, if they were inelastic, neutralize each other's motions, — suppose that, after learning this, he is to be taught the law of the lever. This may be done in either of several ways. The law may be stated, in words, to the pupil, either by the teacher, or in the text-book, and he may be required to learn the words "by heart." We can conceive of one case, and one only, in which it might be well to take this course to the exclusion of every other, and that is, when the teacher is an idiot, or something thereto approaching. Not that this method is not sometimes employed under other circumstances; but this, we think, is the only case in which it can be legitimately resorted to. Another way would be to take a bar of wood or metal, lay it upon a fulcrum, measure the distances of the respective weights from this support, ascertain the amounts of the weights respectively, and show that the product of one

weight into its distance, is equal to the product of the other into its distance. This method is infinitely superior to the other, and if the sole object of the exercise is to teach the fact to the pupil, then it is the best that can be taken. But is the teaching of the fact the only, or the chief object of the exercise? We think it ought not to be. The chief purpose of all teaching should be to develop the powers of the pupil; to discipline mind, body, and heart. And is there no more efficient way of promoting this high object, than that indicated above? We think there is. The law of the lever may be considered as a particular case, under the general law of momentum, and a high school pupil, of ordinary sagacity, can easily be made to see it thus, by that method of teaching sometimes called the Socratic, sometimes the Pestalozzian, and sometimes the inductive or analytical method. In such an exercise, supposing the law of momentum to have been learned by experiment, or otherwise, a colloquy something like the following might take place, between the teacher and pupil:

T. When would two moving bodies counterbalance each other's effect, when acting in precisely opposite directions?

P. When their momenta are equal.

T. And when are their momenta equal?

P. When the product of the weight of one into its velocity is equal to a similar product in the case of the other.

T. Very well. Now look at this lever. You see that the bar turns on this sharp edge, and I have so adjusted the weights, that, when the bar is horizontal, it will remain unmoved. Suppose, now, that one end of the lever be slightly depressed, what will happen to the other?

P. It will rise.

T. Which will have the greater velocity?

P. That which is farther from the fulcrum.

T. What will be the ratio of the velocities?

P. They will be to each other as the circumferences which they describe respectively.

T. And how are these circumferences to each other?

P. They are as their radii.

T. What constitute their radii?

P. The distances of the weights from the fulcrum.

T. Do the weights, in this case, act with each other, or against each other?

P. Against each other.

T. When will they counterbalance each other, then?

P. When the products obtained by multiplying them into their velocities, respectively, are equal to each other.

T. But you said their velocities were as the circumferences in which they move, or as the arms of the lever; what will follow?

P. That the weights will counterbalance each other when the product of one, into its distance from the fulcrum, is equal to the product of the other into its distance from the fulcrum.

T. Now, you may adjust the weights, so that the lever shall be in equilibrium, and then measure the distances, ascertain the amount of each weight, perform the multiplications, as you have stated, and see whether you are right in your conclusion, or not.

Here we have experiment as the foundation of the first principle, logical deduction in the application of this principle, to cases which appear, at first, quite dissimilar, and experiment again as a confirmation of our reasoning. By this method, we cultivate accuracy of perception in the observation of facts, and, at the same time, furnish a discipline to the reasoning powers of the pupil. In the example given, we have probably made the reasoning too terse for most pupils; several of the questions would require to be subdivided. But our object was more to indicate the general course to be taken, than to furnish all the details of this particular case.

Numberless illustrations of the same principle might be given from every department of natural philosophy; the subject of optics furnishes many that are exceedingly beautiful. But we will not further weary the patience of our readers. We have said our say. It is the result of about eight years of somewhat careful experience in teaching this subject. Let us hear from others on the same topic. R. E.

EXCERPTA.

School Forgeries.—If a child will forge a parent's name to an excuse in order to get an hour of play, or to a school-report in order to escape a parent's censure, ought we to be surprised if that same child, when grown to manhood or womanhood, should commit the crime of forgery to obtain the means of criminal indulgence?

Prompting in Recitation.—The act of furnishing arithmetical solutions, or translations in the languages, to a fellow-pupil, before recitation, or of prompting him while in recitation, is *a wrong in the giver* as well as in the receiver. The place of recitation is emphatically a place for fair dealing, for truth, for uprightness towards the teacher, and for equity between fellow pupils.

Emulation.—If the use of emulation as a motive power tends to increase the bulk and showiness of acquisition, rather than to improve its quality; if it tends to the cultivation of a memory for words, rather than an understanding of things; and if it be found that the knowledge acquired through its instrumentality is short-lived, because it has been acquired for the temporary purpose of the *recitation* or *examination*, rather than for usefulness in after-life; if teachers find all or any of these mischiefs resulting from the use of such a motive, they should restrict it within such limits as will effectually avoid them.

Lost Lessons.—Whoever leaves a lesson of his course unmolested, *leaves an enemy in ambush behind him*,—an enemy who will, at some day, rise up to molest his peace, and perhaps to defeat his most cherished hopes.

The Best Teachers are those who can seem to forget what they know full well; who work out results which have become axioms in their minds, with all the interests of a beginner, and footsteps no longer than his.

Resident Editor's Department.

THE RUHMKORFF APPARATUS.

Our last number contained a brief notice of a new piece of galvanic apparatus, devised by M. Ruhmkorff, of Paris, with which he has succeeded, by induction currents,—with quite a small battery,—in producing physical and chemical effects, equal, and even superior, to those afforded by the most powerful electrical machines. Mr. E. S. Ritchie, of this city, whose skill in the manufacture of Philosophical Instruments is well known, has carried this invention to a high degree of perfection; and the results of his labors are of the greatest importance to science. A few evenings since, at his rooms, we had the pleasure of witnessing some of the beautiful experiments made with this apparatus; and, believing that a full account of the principles on which it is constructed would be of interest to our readers, solicited a description for publication. Mr. Ritchie has kindly furnished us the following:

Dear Sir,—At your request I send you the accompanying description of the Ruhmkorff Induction Apparatus:—

The influence of the Voltaic current circulating through a conducting wire in a spiral around or near a bar of steel or iron, produces in it a magnetic current or force. If the bar is of steel, properly hardened, it becomes a permanent magnet. If it is of soft iron, the magnetic force continues as long as the Voltaic current flows, but ceases at the same instant. To this we owe the interesting effects of Electro-Magnetic action, including the Telegraph. Faraday many years since reasoned that if the conditions were reversed, an inverse action would be produced, viz., if a permanent steel magnet were surrounded by a spiral coil or helix, a current similar to the Voltaic would be excited by its influence. He found that to be the fact; but, instead of its being a continuous current, it is but instantaneous, and not in the direction he supposed, but opposite or *inverse;* he also found that when the bar is removed, another instantaneous current is excited, equal, though in an opposite direction to the first,—this he termed the *direct current.* Faraday continued his researches, and placed the Electro-Magnet in place of the permanent one; that is, he surrounded a bar of soft iron by a coil or helix of wire connecting the poles of a Voltaic battery. Within the influence of this Electro Magnet he placed another coil of wire, and found that an analogous effect was produced. An instantaneous current was induced at the moment when the current in the first or primary coil was closed, and, as in the case of the permanent magnet, this current was in the opposite direction, or *inverse*, and that a second *direct* current was induced at

the moment that the circuit was broken. A simple and ingenious contri vance was suggested by De La Rive to cause the making and breaking of the primary current by the induced magnetic power of the iron bar. The instrument was put into form by Ruhmkorff, and in Europe properly bears his name: it is essentially the instrument called in America the *Shocker*, or, in one arranged to show the several parts, the "Analysis of Shocks." This instrument exhibits many of the effects of Static Electricity, but entirely fails to show other effects. The discharge can be produced between the ends of the surrounding spiral or the poles, separated several inches in a vacuum, but not through the *atmosphere*, at least beyond an interval almost infinitely small. Many efforts have been made to give sufficient intensity to pass the sparks through the air, which would show the unity, or at least closer connection, between Voltaic and Frictional Electricity. Fizeau, after researches, happily suggested the bringing the two surfaces of a Leyden Jar in connection with the primary wire at the point of interruption, so that when the break is made, one surface is connected with one end of the wire, and the other end connected with the opposite surface; and the result sought after was produced. Ruhmkorff introduced the Leyden Jar, or *Condenser*, into the instrument, and obtained sparks of more than half an inch in length; and the intensity of the induced current in the outer or secondary spiral was greatly increased. It then remained to improve the construction of the instrument, so as to increase this intensity, to lengthen the distance through which the spark could be thrown. But difficulties were found, and the *insulation* of the parts, which was before sufficient, was found entirely inadequate; it now required an insulation equal for the same intensity of *Frictional* Electricity. Not only is the secondary helix to be insulated from the primary, but the parts of the secondary from other parts. This spiral, or helix, is a fine wire of one to five miles, or longer, to any extent. At the middle point no electricity is supposed to be developed, but a constantly increasing tension is excited toward the two ends or poles; the one positive, the other negative. Consequently, if any two portions of this wire are brought too near, or not *insulated* by being separated by some non-conducting substance, a spark passes, and the portion of the wire is discharged; to prevent this, the wire is covered with silk, which may be saturated with gum lac. This is sufficient for one or two turns of the spiral, and, without the condenser, is sufficient for a wire many miles in length; but with the condenser, and when the spiral is wound the whole length, and returned back upon itself, the spark passes and the wire is discharged,—that is, the intensity which can be produced is limited to that required to pass the spark across from one stratum to another over or under it. Mr. Hearder has, in late numbers of the "Philosophical Magazine," suggested the separating of the strata by interposing gutta percha, and by insulating much more perfectly the primary from the secondary helix. By an instrument constructed with great care, he obtained sparks of three inches in length.

I have constructed a helix in which the sections or strata of the wire are not longitudinal, but nearly perpendicular to the axis of the helix, each course

being insulated from that next to it. By this means the poles of the wire are at the extreme ends of the helix, which is built up its entire thickness as it progresses; and as the wire does not, after a long interval, return over itself, a sufficient tension cannot at any place be excited to cause a discharge or a spark to pass. I have obtained sparks of over six inches in length. The instrument is of great value for illustration and experiment, and has advantages over the ordinary electrical machine in many respects. The Battery required is from two to six cells, and it operates equally well in all states of the atmosphere, while some of the effects produced exceed the most powerful machines. By bringing the poles within three or four inches, a torrent of sparks passes, which are varied in appearance as the distance is changed, or points or balls used. If a Leyden Jar is placed in connection, and Lane's discharger used, the jar is charged and discharged with great rapidity, producing a deafening noise and brilliant light. In all the familiar experiments, such as the spotted tubes, &c., the discharges are so rapid that the light appears continuous; while the effects in vacuum by the use of the aurora tube, the Abbe Nollet's Globe, Gassiot's Cascade, &c., far exceed those produced by the largest electrical machines. The spark appears like that given from the prime conductor; but it would be highly dangerous, if not fatal, to receive it through the system. The *role* of the conductor is probably to absorb or draw off the induced first or *inverse* current, allowing the flow of the *direct* current; these, if *both* are induced, nearly neutralize each other.

THE ARCTIC FIRMAMENT. — The intense beauty of the Arctic firmament can hardly be imagined. It looked close above our heads, with its stars magnified in glory, and the very planets twinkling so much as to baffle the observations of the astronomer. I have trodden the deck when the life of earth seemed suspended, — its movements, its sounds, its coloring, its companionships; and as I looked on the radiant hemisphere circling above me, as if rendering worship to the unseen Centre of Light, I have ejaculated, in humility of spirit, "Lord, what is man, that thou art mindful of him?" And then I have thought of the kindly world we had left, with its revolving sunlight and shadow, and the other stars that gladden it in their changes, and the hearts that warmed to us there, till I lost myself in memories of those who are not, and they bore me back to the stars again.— *Dr. Kane.*

QUALIFICATIONS OF A GOOD TEACHER. — No knowledge, however profound, can constitute a teacher. A teacher must have knowledge, as an orator must have knowledge, as a builder must have materials; and as, in choosing the builder of my house, I do not select the man who has the most materials in his yard, but I proceed to select him by reference to his skill, ingenuity and taste; so also, in testing an orator or a teacher, I satisfy

myself that they fulfil the comparatively easy condition of possessing sufficient materials of knowledge with which to work; I look then to those high and noble qualities which are the characteristics of their peculiar calling. There were hundreds at Athens who knew more than Demosthenes, many at Rome who knew more than Cicero; but there was but one Demosthenes and one Cicero. — *Lord Ashburton's Address to Schoolmasters.*

Mathematical Questions.

Question 21. — What is the fallacy in the following equation and operation?

Let $x = a$. Multiplying by x and subtracting a^2;

$x^2 - a^2 = ax - a^2$; dividing by $x - a$,

$x + a = a$; that is, if $a = 2$, $4 = 2$? B. F. S. G.

Question 22. If a rectangular piece of land were two rods wider and three rods longer, it would contain 64 rods more; but if it were three rods wider and two rods longer, it would contain 68 rods more. Required the area. *(Selected.)*

Solution of Question 9.

Let x be the 1st term and y the ratio. Then

(1) $x(1 + y + y^2 + y^3) = 15$,

(2) $x^2(1 + y^2 + y^4 + y^6) = 85$. Multiply (1) by $y - 1$ and (2) by $y^2 - 1$,

(3) $x(y^4 - 1) = 15(y - 1)$,

(4) $x^2(y^8 - 1) = 85(y^2 - 1)$. Dividing (4) by (3),

(5) $x(y^4 + 1) = \frac{17}{3}(y + 1)$.

Equating the values of x obtained from (1) and (5), reducing, and dividing by y^2,

$17\left(\frac{1}{y^2} + \frac{2}{y} + 2 + 2y + y^2\right) = 45\left(y^2 + \frac{1}{y^2}\right)$. Putting $z = y + \frac{1}{y}$,

$17(z^2 + 2z) = 45z^2 - 90$, which gives $z = \frac{5}{2}$ or $-\frac{9}{7} = y + \frac{1}{y}$.

Solving $y + \frac{1}{y} = \frac{5}{2}$, $y = 2$ or $\frac{1}{2}$, and from (1) $x = 1$ or 8.

The numbers are, therefore, 1, 2, 4, and 8. G. B. V.

Solution 2.

Let x^3, x^2y, xy^2, and y^3 represent the numbers. Then

(1) $x^3 + x^2y + xy^2 + y^3 = 15 = a$, and

(2) $x^6 + x^4y^2 + x^2y^4 + y^6 = 85 = b$. Dividing (1) by $x + y$ and (2) by $x^2 + y^2$,

(3) $x^2 + y^2 = \frac{a}{x + y}$;

(4) $x^4 + y^4 = \frac{b}{x^2 + y^2}$. Putting $S = x^2 + y^2$, and $p = xy$ in (3) and (4),

(5) $S = \frac{a}{x + y}$;

(6) $S^2 - 2p^2 = \frac{b}{S}$. Squaring (5),

(7) $S^2 = \frac{a^2}{S + 2p}$, from which

(8) $2p^2 = \frac{a^4 - 2a^2 S^3 + S^6}{2 S^4}$. From (6)

(9) $2p^2 = \frac{S^3 - b}{S}$. Equating the values of $2p^2$ in (8) and (9), reducing the equation, and transposing,

$S^6 + (2a^2 - 2b) S^3 = a^4$, whence

$S^3 = -a^2 + b \pm \sqrt{a^4 + (a^2 - b)^2} = 125 \therefore S = 5$. Hence,

$p = \frac{a^2 - S^3}{2 S^2} = 2 \therefore x^2 + y^2 = 5$, and $xy = 2$.

Adding to and subtracting from $x^2 + y^2 = 5$, twice $xy = 2$, and extracting the second root, we have $x + y = 3$, and $x - y = 1$. Hence $x = 2$, and $y = 1$. The numbers are, therefore, 8, 4, 2, and 1. M. H.

Brimfield, Mass.

[Solved also by G. W. P., pupil of the E. H. School. Solutions of this question may be found in the Algebras of Robinson and Alsop. — Ed.]

SOLUTION OF QUESTION 12.

Instead of the common table of Long Measure, use the following: 6 in. $= \frac{1}{2}$ ft., $1\frac{1}{2}$ ft. $= \frac{1}{2}$ yd., $5\frac{1}{2}$ yd. $= 1$ rod, &c., and the difference is easily found. By using the same table the question may be readily proved, whether you add the remainder and subtrahend, giving the minuend, or subtract the remainder from the minuend, and thus obtain the subtrahend.

Thus, 5 in. cannot be taken from 0 in.; therefore, add 6 in. $= \frac{1}{2}$ ft., and there will remain 1 in. As $\frac{1}{2}$ ft. was added to the upper number, we will add $\frac{1}{2}$ ft. to the lower, in order that the difference may be the same. To subtract $1\frac{1}{2}$ ft., add to the upper number $\frac{1}{2}$ yd. $= 1\frac{1}{2}$ ft., subtract and we have left 0 ft. Add $\frac{1}{2}$ yd. to the subtrahend, and $5\frac{1}{2}$ yds. from 1 rod leaves 0 yds. &c. *Proof:* 1 in. + 5 in. $= 6$ in. $= \frac{1}{2}$ ft.; 1 ft. + $\frac{1}{2}$ ft. $= 1\frac{1}{2}$ ft. $= \frac{1}{2}$ yd. $5\frac{1}{2}$ yds. $= 1$ rod, &c., giving the minuend, or subtracting the remainder from the minuend, we obtain the subtrahend. A. A. K.

Pomeroy, O.

Solution 2.

	fur.	rod.	yd.	ft.	in.	
One mile =	7	39	5	1	6,	minuend.
	7	39	5	1	5,	subtrahend.
					1,	*ans.*

If we add together the subtrahend and remainder, and consider that 1 ft. 6 in. $= \frac{1}{2}$ yd., we have the same expression as before for a minuend.

C. M. C.

Leominster, Mass.

Performed in the same way by L. W., Carmi, Ill.

SOLUTION OF QUESTION 13.

(1) $x^2 + xy = 8$,

(2) $x^2 + y = 6$. Hence,

$y = \frac{8 - x^2}{x}$, and $y = 6 - x^2$ ∴

$\frac{8 - x^2}{x} = 6 - x^2$, ∴

$8 - x^2 = 6x - x^3$ ∴

$x^3 - x^2 - 6x + 8 = 0$; factoring,

$(x - 2)(x^2 + x - 4) = 0$; dividing by $x - 2$,

$x^2 + x - 4 = 0$, ∴ $x^2 + x = 4$, $x = -\frac{1}{2} \pm \frac{1}{2}\sqrt{17}$.

Or, dividing by $x^2 + x - 4$, instead of $x - 2$,

$x - 2 = 0$ ∴ $x = 2$. Hence from (2)

$y = 2$, or $y = 1\frac{1}{2} \pm \frac{1}{2}\sqrt{17}$. A. A. K.

Pomeroy, O.

SOLUTION 2.

(1) $x^2 + xy = 8$,

(2) $x^2 + y = 6$. From (2), $y = 6 - x^2$, which multiplied by x gives

(3) $xy = 6x - x^3$. Substituting this value of xy in (1),

(4) $x^2 + 6x - x^3 = 8$, or by transposition and change of signs,

(5) $x^3 - x^2 = 6x - 8$. Multiplying (1) by x,

(6) $x^3 + x^2y = 8x$; subtracting (5) from (6),

(7) $x^2y + x^2 = 2x + 8$. Multiplying (2) by y,

(8) $x^2y + y^2 = 6y$; subtracting (8) from (7),

(9) $x^2 - y^2 = 2x + 8 - 6y$; by transposition,

(10) $x^2 - 2x = y^2 - 6y + 8$; completing the square of 1st member and extracting the 2d root of both,

$x - 1 = \pm\sqrt{y^2 - 6y + 9} = \pm(y - 3)$ ∴

$y - x = 2$ or $= x + y = 4$.

Taking $y - x = 2$, or $y = 2 + x$, and deducing from (2) $y = 6 - x^2$,

$2 + x = 6 - x^2$ ∴ $x^2 + x = 4$ ∴ $x = -\frac{1}{2} \pm \frac{1}{2}\sqrt{17}$, which substituted in $y = 2 + x$ gives $y = 1\frac{1}{2} \pm \frac{1}{2}\sqrt{17}$.

Taking $x + y = 4$, and finding from (1) $x + y = \frac{8}{x}$, we have

$4 = \frac{8}{x}$ ∴ $x = 2$, and, from $x + y = 4$, $y = 2$. R. H.

Pupil of the E. H. S.

ON THE SUMMATION OF GEOMETRICAL SERIES.

Let a be the first term and r the ratio; then for S, the sum of $n + 1$ terms, we have

$S = a + ar + ar^2 + ar^3 + \ldots . ar^n = a(1 + r + r^2 + r^3 + \ldots . r^n)$.

Now, we already know by division that

$\frac{1-r^{n+1}}{1-r} = 1 + r + r^2 + r^3 + \cdots\cdots r^n$; therefore,

$S = \frac{a(1-r^{n+1})}{1-r}$; the same as found by the usual method.

Again, $S = a + ar + ar^2 + ar^3 + \cdots\cdots ar^n$

$= a + r(a + ar + ar^2 + \cdots\cdots ar^{n-1}) = a + r(S - ar^n)$.

Therefore we find

$S - rS = a - ar^{n+1}$, or

$S(1-r) = a(1-r^{n+1}) \therefore$

$S = \frac{a(1-r^{n+1})}{1-r}$, the same as before.

J. D. R.

On the Solution of Equations of the Second Degree.

The solution of the equation

$$(1)\quad ax^2 + 2bx = c,$$

of the second degree, will involve fractions unless $2b$ and c are both exactly divisible by a. We may always avoid the introduction of fractions by the following transformation. Put

$$ax = x'; \text{ then } x = \frac{x'}{a}.$$

Substitute this value of x in (1) and it becomes

$$\frac{x'^2}{a} + \frac{2bx'}{a} = c;$$

$$\text{or, } (2)\quad x'^2 + 2bx' = ac.$$

Now it is obvious that the roots of this equation are not fractional, since

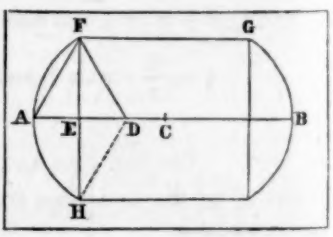
$$x' = -b \pm \sqrt{ac + b^2}.$$

Therefore $x = \frac{x'}{a} = -\frac{b}{a} \pm \frac{\sqrt{ac + b^2}}{a}$, the roots of (1).

It will be seen how readily we can pass from (1) to (2) by comparing these equations. The first term is divided by the co-efficient of x^2, the second term remains unchanged, and the independent term is multiplied by the co-efficient of x^2. If the co-efficient of x in (1) is not even, multiply both members by 2, and then pass at once to (2). This facilitates the solution very much when the co-efficients are large numbers and prime to each other.

J. D. R.

SOLUTION OF QUESTION 14 IN THE NUMBER FOR OCTOBER, 1856.



The distance HF in the figure is to be 37 rods, thus leaving $1\frac{1}{2}$ rods for the width of the track. If the arcs were semi-circumferences, they would together be equal to the circumference of a circle whose radius is 18.5 rods, or 116.22 rods. Then $(160 - 116.22) \div 2 = 21.88$, and $21.88 + 37 = 58.88 = AB$. But the distance from A to the end of the field cannot, in that case, be $1\frac{1}{2}$ rds.

If to have the space symmetrical means to leave a space $1\frac{1}{2}$ rods wide from the middle point of the arc to the end of the field, then AB is given equal to 57 rods. Since the arcs, in this case, cannot be semi-circumferences, to find them and the parallel sides becomes more difficult. Assume FG = 35; then, $(57 - 35) \div 2 = 11 = AE$; $EF = 18.5$ rd.; and $AD = DF = AE + DE$. Let $x = ED$; then $x^2 + 18.5^2 = (x + 11)^2$, whence $x = ED = 10.0568$; and $11 + 10.0568 = 21.0568$, the radius of the arc. By Trigonometry we find the angle ADF, or $D = 61° 28\frac{1}{4}'$ nearly; then the arc $AF = \frac{D}{360} \times \pi \times 42.1136 = 22.575$, which doubled gives 45.15 for the length of the arc FAH, and $(160 - 90.3) \div 2 = 3\ 4.85$ for the length of FG, which differs from the value assumed by 0.15 rod. If 34 be assumed as the value of FG, and the same process be performed, we shall find a small error in the opposite direction. Again, if we assume 34.5, the error will be less than 1.5 ft. Finally, assuming 34.4, we reduce the error to less than 4 inches. H.

[This question, as proposed in the "Teacher," did not limit the width of the track at the ends of the field, that being left to the judgment of the performer. It was accordingly solved by our valuable correspondent G. B. V., who made the arcs semi-circumferences. This gives the most convenient form, but makes some parts of the track too narrow. In the problem, as it was actually proposed to the surveyor, the width of the track was limited as in the preceding solution. — Ed.]

☞ We acknowledge, with pleasure, solutions of Question 11th, communicated by E. F., Jr., of Lee, and D. G., student of the Oxford Normal Institute, notice of which was inadvertently omitted in the last number. — Ed.

Intelligence.

School Rights of Non-Residents.—The following act, to which allusion was made in our last issue, has just passed to be enacted, with great unanimity, by the two branches of the legislature. Its provisions are of some importance, as affecting questions constantly requiring the attention of local committees: —

Chap. 132. An Act to define the rights of the children of non-resident parents to attend public schools.

Be it enacted, &c., as follows:

All children between the ages of five and fifteen years shall be entitled to attend the public schools of the city or town in which they shall reside for the time being; *provided, however,* that if any child shall attend a public school in any city or town of this Commonwealth, other than that in which the parent or guardian of such child may reside, and shall have resided in such city or town for the sole purpose of attending such school, the consent of the school committee of such city or town shall first be obtained, and the parent or guardian of such child shall be liable to pay to such city or town, for the tuition of such child, a sum equal to the average expense, per scholar, for such school, for the period such child shall have so attended.

Approved May 8, 1857.

The above is understood to be simply a declaratory law setting forth what are

now inferred to be, in principle, all the rights of every child living in Massachusetts, under our State system of free schools,—that of attendance at public schools, wherever their lot may be cast. These rights are vested in the child; they have no reference to the parent, whether living or dead, rich or poor, absent or present. In the principle of our laws, every child must be educated, to protect the State against the evils flowing out of its ignorance. The child may claim it as a right, on the one hand; or, on the other, the State may compel it by its truant laws for its own protection. Towns may be punished by fines, if they fail to bestow this education; and the child may be punished, if he refuses to avail himself of it.

The above law recognizes the right of every child to attend public school in the town where he may be residing for any fixed time. The only limitation is designed to protect those cities and towns which, having established and supporting schools of the higher grades, would be liable to have them overrun by applicants from other towns, having only a temporary residence for the express purpose of attending its schools. In such cases the consent of the committee is made necessary, and the parents of the children are made liable for their share of cost of tuition.

Another effect of this law, perhaps not designed by the committee who reported it, but certainly not objectionable in itself, is to give to every child, as soon as it is five years old, the right to be educated. This applies to all children, of resident or non-resident parents, and virtually nullifies all the rules and regulations of towns or cities which may prescribe a more advanced age than five for admission to the public schools. Under this law an action would lie against a city or town which should refuse to admit to its schools, as some now do, children between the ages of five and seven or eight. Such a refusal, even before the passage of this law, has been regarded as of doubtful legality, wherever it can be shown that the town in question has claimed its share of the school-fund upon data including the children thus shut out from its benefit. Whatever doubt might before exist is now removed by positive law,—"all children between five and fifteen shall be entitled."

The unanimity with which this law passed both houses is noticeable as showing the general assent yielded to its provisions. In the House, it passed without a single word of dissent, or an opposing vote. In the Senate, the words, "the consent of the school committee of such city or town shall first be obtained," were added to the proviso, with which amendment the measure passed with equal unanimity.

Scientific Exploring Expedition.—A scientific exploring expedition is about to proceed, under the sanction of the English Government, through the western portion of British America. It is intended that the party should proceed from Lake Superior to Lake Winnipeg, and from thence through the country lying between the northern branch of the Saskatchawan and the boundary of the United States. The government is desirous of making the expedition as scientifically useful as possible, and with this view the assistance and counsel of the Royal Society have been solicited. The council has appointed a committee to act in the matter, and a report has been drawn up. The expedition is to be commanded by Mr. John Palliser.

At the commencement of the present year, Mr. Lummis, a graduate of Middletown, was elected Principal of the High School at Lynn, which had for some time been under the care of Prof. Crosby as temporary instructor, the Principal, Mr. M. P. Case, having been for some time out of health, and having finally resigned on that account. Mr. Benj. F. Morrison has been recently elected to the 4th Ward Grammar School; salary, $1,000. Mr. M. was transferred from the 2d Ward School, where he was succeeded by Mr. Levi W. Crosman; salary, $700. Mr. John W. Vater has been appointed to the 1st Ward School; salary, $650.

Rev. Edwin Hall is orator, and B. E. Perry poet, at the next Alumni meeting of Middlebury, Vt., College.

Mr. John Wilson has left Dedham, and gone to Watertown. His place is supplied by Mr. George Newcomb, who has recently been in North Chelsea.

Mr. B. F. Snow has resigned his place in Dorchester, and gone to Lyons, N. Y., to take charge of the Union school in that town.

Mr. A. J. Nutter has resigned his charge in Watertown, and accepted a call to a Grammar School in West Roxbury, which has for many years been successfully taught by Mr. Thomas Metcalf.

At a recent town-meeting in West Roxbury, the handsome sum of $13,000 was appropriated for a new school building for girls.

Mr. W. J. Rolfe, late of Dorchester High School, has been elected Master of the Oliver High School at Lawrence. Salary, $1,200.

Mr. William J. Potter has been appointed Master of the Cambridge High School, in place of the late Osgood Johnson.

The Plymouth County Teachers' Association will hold its next semiannual meeting at North Middleboro', on Friday and Saturday, June 12th and 13th, 1857, commencing on Friday, at 10 o'clock, A. M.

The exercises of the session will be as follows:

Friday, A. M., organization, appointments, &c.

Friday, P. M., Lecture by Hon. George S. Boutwell, Secretary of Board of Education.

Friday evening, Lecture by Joshua Bates, Esq., Principal of the Brimmer School, Boston. Subject—"Requisites for Success in Teaching."

Saturday, A. M., Lecture by Samuel J. Pike, Esq., Principal of Somerville High School. Subject—"The Democratic Element in School Government."

During the session, discussions will take place on the following topics, viz.:

1st. "The Best Method of studying the English Language."

2d. "Ought *Teachers* to be employed *to examine Teachers* for our Public Schools?"

3d. "Importance, and Best Method of teaching Morals in the Public Schools."

A full attendance is anticipated.

N. B. Passengers will leave the train at *Titicut Depot*, on the Fall River R. R.

L. A. Darling, Sec'y Plymouth Co. Teachers' Association.

Literary Record.

Messrs. S. S. & W. Wood, of New York, have published a new and beautiful edition of "Brown's Grammar of English Grammars," revised and improved. Quite an improvement has been made in the paper and general style of the work. Such a valuable thesaurus should be in every teacher's library.

Messrs. C. S. Francis & Co., New York, have issued a fine edition of "Bacon's Essays, with annotations by Richard Whately, D. D." This is a re-publication of the second London edition, and is printed on large and beautiful type. It will be found a convenient reference book.

Messrs. A. S. Barnes & Co., of New York, have in course of publication a new set of Readers, entitled the "National Series," prepared by Richard G. Parker & S. Madison Watson. Those for the primary classes are very attractive books.

Reviewers' Table.

Conversations sur "Le Grand-pere," *by F. S. Williams.* Boston: Hickling, Swan & Brewer. 1857.

This book is one which teachers have long needed, to help their pupils take that step which seems so difficult, viz., to launch themselves upon the current of French conversation. Connected as it is with an excellent reading-book for learning the common colloquial French phrases, it will do much to lead the pupil to this result almost before he is aware of it. The design of the work is to train the ear and the tongue of the pupil by the use of these questions and answers, and thus enable him to overcome the awkwardness which he feels in speaking French words when he finds himself face to face with a Frenchman.

The speaking grammars are designed to accomplish the same thing, but the detached phrases which they contain have but little connection, and, as the author of the "Conversations" remarks in his preface, they stop short of the desired result. These phrases are all valuable, but they lie confusedly in the memory of the pupil, like a pile of building materials, thrown together without order, and are not available for conversation, till long practice has enabled him to select and appropriate them rapidly. The habit of replying to a series of questions on the same subject, drawn from a text-book with which he is familiar, will soon prepare the pupil to venture a little beyond this, by removing that self-consciousness which often makes one hesitate and stammer even when speaking his own language. The processes of the mind, when we converse in a foreign tongue, may be too subtle for exact analysis, but we can easily detect some of the obstacles to our progress in this accomplishment. We know that the freer the mind is from apprehension of any kind, the easier the play of all the faculties which are brought into requisition when we converse. At first, the difficulties in the way of speaking a *foreign* language seem almost insurmountable. The tongue is unused to the new work; the ear does not hear — that is, it does not discriminate; the vocabulary is limited. The training by this work is admirably adapted to remove two of these difficulties, by enabling the tongue and the ear to do their part, and thus assist the working of the mind. The pupil needs just the practice which he will here get, to be able in conversation to employ his mind chiefly upon the thoughts he wishes to express, while the organs of speech and hearing, by force of habit, are becoming more and more its ready instruments. When the pupil reads, or better still repeats, the answers to these prepared questions, he will be going through a talk in French, which will come nearer to extempore conversation in that language, than anything we have heretofore seen in the text-books. This, we think, will make the book a popular one with teachers; and upon trial, we have no doubt, they will find it a great help to their own progress, as well as that of their pupils. W.

The First Book of Arithmetic, *by Dana P. Colburn, Principal of the Rhode Island State Normal School, and author of "Arithmetic and its Applications."* Philadelphia: H. Cowperthwait & Co. 1856. Small Duodecimo, pp. 176.

"Nothing is more difficult than to write a child's book," — so say the critics — so say we all. Especially is this the case in the preparation of text-books. One writer presents the truths of science with too little regard to the limited capacities of childhood, bringing them forward in such a form that only adult intellects, accustomed to think, can grasp them; and the result is that words only are learned. Propositions are stated by the learners without being comprehended. Another, determined to avoid this error, "simplifies" the subject, diluting it to such an extent as to take away its vitality, and adopting a method that bears the same relation to the homœopathic practice that homœopathy bears to the old calomel treatment.

It must, therefore, be high praise to say of a book for the use of young learners, that it simplifies the subject of which it treats, without detracting in the slightest degree from the vigor of the thoughts presented, or the accuracy of the conceptions in the mind of the pupil; and yet we think this praise is due to Mr. Colburn's little work. The subject is here brought to the level of the child's capacity; and yet every question in the book involves an important principle, and its solution requires an accurate conception, and a careful application of it. It is so arranged that any child of ordinary ability can easily take the steps pointed out in it, and yet whoever has gone through it in a proper manner has received a large amount of valuable mathematical training. Mr. Colburn's happy manner is admirably calculated to interest children; and this quality of the book is much enhanced by its spirited illustrations, and the attractive style in which the enterprising publishers have done their part of the work.

Were it not that the fitness of things seems to require that a small book should have a short notice, we should be glad to point out some of the merits of the work more in detail; but we forbear, simply adding that it seems to us in all respects admirably adapted to its purpose. E.

MANUAL OF BOTANY OF THE NORTHERN UNITED STATES; *Revised Edition, including Virginia, Kentucky, and all East of the Mississippi; Arranged according to the Natural System.* By ASA GRAY, *Fisher Professor of Natural History in Harvard University. (The Mosses and Liverworts, by Wm. S. Sullivant.) With six Plates, Illustrating the Genera of Ferns, &c.* New York: Ivison & Phinney and G. P. Putnam. 1857.

FIRST LESSONS IN BOTANY AND VEGETABLE PHYSIOLOGY, *illustrated by over 360 wood engravings from original drawings, by Isaac Sprague, to which is added a copious Glossary of Botanical terms. By* ASA GRAY. New York: Ivison & Phinney and G. P. Putnam. 1857.

No department of Natural History has greater charms, or more naturally attracts and interests the notice and fixes the attention of children and youth, than the Vegetable Kingdom. There are few objects that seem to arrest the notice of the child, and call into exercise the latent power of covetousness, as do elegant and beautiful flowers. The sight of these almost invariably prompts the little prattler to inquire, "What is this?" The answer may be, "It is a flower." Not satisfied with this answer, for he has learned nothing that he did not already know, he still presses the inquiry, "What is its name?" Here the adult is found not unusually on a level with the child; for he knows no more, or very little more, of the specific names of plants and flowers, than he did in his puerile days. In view of this deplorable ignorance, the inquiry presents itself, What is the remedy?

The answer to this primary question is, Procure a good manual of botany, and devote a portion of your leisure hours for reading to the study of this subject, and you will very soon become interested in it, and thus make yourself familiarly acquainted, at least, with local botany. To accomplish this very desirable end there is, perhaps, no better or more reliable work on this department of natural history, than the present illustrated edition of Gray's Botany of the Northern United States.

The first of these excellent volumes contains directions for unpractised students, with an Artificial Analytical Key to the Natural, Orders well designed to aid them in learning the names of plants hitherto unknown, without the assistance of the teacher's voice. Thus, with the study of this Manual of Botany, any young person with a good common school education may become acquainted with the Botany of the Northern States.

This edition has fourteen plates, each containing many figures, illustrating the genera of the six Cryptogamous orders, such as Mosses, Ferns, &c.

These Manuals are earnestly commended to the notice of teachers and all others who have any desire to become acquainted with the Flora of the New England, Middle, and Western States. W.

EDITORIAL POSTSCRIPT.

JUNE, 1857.

It is with pleasure that we inform our friends of the recent act of the legislature, by which a copy of the "Teacher" is sent to the school committee of each town and city in Massachusetts. The sum liberally appropriated for this purpose will not only very materially benefit our finances, but we hope also will add value to our publication, by the facilities thus afforded for obtaining and conveying useful information upon educational matters in the different parts of our Commonwealth. And to this end we would respectfully and most earnestly solicit communications and discussions on educational subjects, items of intelligence, and notices upon all matters which would be of special interest to teachers and school committees.

We append the Report of Mr. Batchelder, together with the Resolve which has passed both Houses and received the signature of the Governor:

Commonwealth of Massachusetts.

In Senate, March 30, 1857.

The Joint Committee on Education, to whom was committed the Petition of D. B. Hagar and others, President and Directors of the Massachusetts State Teachers' Association, praying for an appropriation in aid of the "Massachusetts Teacher," having considered the same,

REPORT:

The "Massachusetts Teacher" was established in 1848, as the organ of the "Massachusetts State Teachers' Association," and was the first educational journal of its kind published in this country. From its establishment to the present time, it has been gratuitously edited by practical teachers of the State.

Until recently its financial interests were in the hands of a private individual; but the Association, believing that teachers would become more interested in the "Teacher," if it were in all respects their property, purchased, during the last year, the legal title to the same; and it is now exclusively the property of the "State Teachers' Association." In order to render it more worthy of general support, its size has been increased from thirty-two pages to forty-eight, thus making its contents more ample than those of any similar monthly periodical in the country (except the "New York Teacher," which is of equal size), without any increase of the subscription price, which is one dollar a year. The directors of the Massachusetts Teachers' Association ask the State to make such appropriation as will enable them to send a copy of the "Massachusetts Teacher" to the school committee of each town and city in the Commonwealth. From the evidence educed, your Committee believe that the "Teacher" represents, to a very great extent, all the interests of the Massachusetts School System. This appears evident from the composition of its board of editors, which, for the present year, includes one member of the Board of Education, one Principal of a State Normal School, two Professors in the State Teachers' Institutes, one Principal of an incorporated Academy, four Principals of High Schools, two Masters of Grammar Schools, one (late) Master of a Primary School, and one Master of a Private School. This periodical being under the control of gentlemen so eminently qualified to impart valuable information relative to popular education to the numerous persons who

have in charge the oversight and instruction of Massachusetts Schools, your Committee feel assured that by granting the aid asked for by the petitioners, a channel of communication will be opened, through which the committees of the several towns will be made acquainted with the educational doings in other States, and in the different portions of our own State. Through this means they may be made acquainted with the discussions of great practical importance in regard to the management of schools; with the opinions entertained of the numerous text-books now before the public; with the improvements in school buildings, furniture; and the best manner of bringing to bear the various appliances connected with education, in order to produce the most favorable results.

This aid will further benefit school committees, by exciting an honorable emulation among the boards of the several towns; by furnishing them with the names of teachers who desire to obtain situations, and also with the means of notifying teachers of vacancies that occur; by giving them, in fine, a large amount of useful information which cannot be obtained in any other way than through the "Massachusetts Teacher."

This aid, it is believed, will have a beneficial effect on teachers, since committeemen will doubtless call their attention to the publication, the reading of which would enable them to discharge their duties more understandingly, and to entertain a fuller appreciation of the responsibilities which rest upon them; and whatever accomplishes this, must be of the greatest consequence to the schools, and therefore to the State.

Massachusetts has cause to be proud of the high position she sustains among her sister States in regard to the education of her people; but, in furnishing aid to educational journals in order to secure their circulation among the several school districts in the State, she is behind several competitors.

Ohio sends one copy of the "Ohio School Journal" to each school board. Connecticut appropriates $250 for two hundred and twenty copies of the "Connecticut School Journal," which is but two-thirds the size of the "Massachusetts Teacher." New York appropriates $1,000; Pennsylvania $1,700. Michigan and Wisconsin each sends a copy of its Journal to every school district. Upper Canada appropriates to the same end about $1,800. In Rhode Island, Indiana, and Illinois, propositions for like expenditures are now before the legislatures. The States enumerated are the only northern States save one in which periodicals devoted to school interests have been established.

From the foregoing considerations, and from many others which might be adduced if it were deemed necessary, your Committee unanimously agree to report the accompanying Resolve.

For the Committee,

JOHN BATCHELDER.

In the Year One Thousand Eight Hundred and Fifty-Seven.

RESOLVE IN FAVOR OF THE MASSACHUSETTS STATE TEACHERS' ASSOCIATION.

Resolved, That there be allowed and paid, out of the treasury of this Commonwealth, to the Massachusetts State Teachers' Association, the sum of nine hundred dollars, in three annual instalments of three hundred dollars each, on condition that the said Association will furnish a copy of the "Massachusetts Teacher" to each school committee in the several cities and towns in the State for the term of three years, for the benefit of present and future school committees; and that the governor draw his warrants accordingly.

TO CORRESPONDENTS. — Several interesting articles on educational subjects have been received during the month, and will appear in our next number.

OBITUARY.

OSGOOD JOHNSON, late Principal of the Cambridge High School, was born at Andover, Mass., July 31st, 1831. His father, Prof. Osgood Johnson, for several years the Principal of Phillips Academy, was a distinguished scholar, an eminently successful teacher, a warm-hearted philanthropist, a devoted Christian, a kind husband, father, and friend.

The subject of this sketch, from his earliest childhood, enjoyed the benefit of Christian instruction, with the advantages of a thorough course of scientific and classical training.

He possessed an active, searching intellect, which never could be satisfied with superficial acquirements. He had a strong physical constitution, and was distinguished as a gymnast at an early age. At the age of sixteen, he entered Dartmouth College as Freshman, though prepared for an advanced standing. He maintained a superior rank as a scholar, won the confidence of classmates, and the highest regard of his instructors. His writings evince an easy style, embellished with poetic imagery of superior excellence.

In the summer of 1852, he was appointed Principal of Warren Academy, at Woburn, Mass. His associate was John I. Ladd, an intimate friend, who had been his college room-mate. He established, at Woburn, a firm reputation as a faithful teacher and a rare disciplinarian.

He was soon after appointed to the mastership of the Worcester High School. Here he labored with great success, winning the love of his pupils, and the entire confidence of the Committee of Education for the city of Worcester. In their recent public report, the labors of Mr. Johnson were noticed with the most flattering commendation.

In August, 1855, in consequence of the resignation of Mr. Elbridge Smith, as Principal of the Cambridge High School, Mr. Johnson was invited to the responsible vacancy.

Fears, not altogether unnatural, were entertained by some, lest, in consequence of those evil results which a change of teachers is almost sure to bring, the success of the new incumbent would, for a time, at least, be precarious. But we are informed that no jar or interruption of the harmony hitherto maintained, was perceptible. The school continued to be as prosperous under its new head master, as under his predecessor. The pupils loved him fondly. At the outset, they gave him their hearts, and never had occasion to withdraw their entire confidence and regard.

About three years after graduation, Mr. Johnson was married to the only daughter of Charles Choate, Esq., of Woburn. His wife, in her lonely widowhood, fondly cherishes his memory, and, as she tearfully gazes in the laughing face of her orphan cherub of a single summer, sighs at the vanity of earth, and hopes for a blessed reunion above.

Near the first of April, 1857, he was seized with a sudden convulsion, while attending to his school-room duties, and conveyed senseless to his home; he recovered partially from the attack; similar fits soon followed, which continued to leave him weaker and weaker, until Monday, April 13th, when, near the dying of the day, his sufferings, which had previously been intense, ceased, and he fell into what seemed a soothing sleep. An unusual calm crept over his pallid form, in which his weary spirit winged its flight to the land of rest. Not a gasp or contortion indicated the moment when his heart ceased to throb in life. He seemed like one

"Who lies down to pleasant dreams."

A long procession of pupils and fellow teachers, with weeping eyes and aching hearts, followed his lifeless form to Mount Auburn, that sequestered spot, the home of the lamented dead.

WOBURN, April 26, 1857. J. I. L.

George Richmond, Del. | From a drawing in the possession of the Earl of Carlisle | H. Wright Smith, Sc.

Yours truly yours.

Wm H. Prescott